LineUp With Math™ Alignment
Kansas Curricular Standards for Mathematics
Jan 31, 2004

Standard 1: Number and Computation

Number and Computation – The student uses numerical and computational concepts and procedures in a variety of situations.

Benchmark 3: Estimation – The student uses computational estimation with rational numbers and the irrational number pi in a variety of situations.

Eighth Grade Knowledge Base Indicators The student…	***LineUp With Math™* Activities**
2. estimates real number quantities using various computational methods including mental math, paper and pencil, concrete objects, and/or appropriate technology (2.4.K1a)	--Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations.
Eighth Grade Application Indicators The student…	***LineUp With Math™* Activities**
1. adjusts original rational number estimate of a real-world problem based on additional information (a frame of reference)(2.4.A1a)	--Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts.
2. estimates to check whether or not the result of a real-world problem using rational numbers, the irrational number pi, and/or simple algebraic expressions is reasonable and makes predictions based on the information (2.4.A1a)	--Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations.
3. determines a reasonable range for the estimation of a quantity given a real-world problem and explains the reasonableness of the range(2.4.A1c)	--Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations.
4. determines if a real-world problem calls for an exact or approximate answer and performs the appropriate computation using various computational methods including mental math, paper and pencil, concrete objects, or appropriate technology (2.4.A1a)	--Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts.

Benchmark 4: Computation – The student models, performs, and explains computation with rational numbers, the irrational number pi, and algebraic expressions in a variety of situations.	
Eighth Grade Knowledge Base Indicators The student… 1. performs and explains these computational procedures with rational numbers (2.4.K1a): d. multiplication or division to find: ii. percent of increase and decrease	***LineUp With Math™* Activities** --Use percent relationships to resolve distance, rate, time conflicts in air traffic control.
Eighth Grade Application Indicators The student… 1. generate and/or solves one- and two-step real-world problems using computational procedures and mathematical concepts with: d. application of percents (2.4.A1a)	***LineUp With Math™* Activities** --Use percent relationships to resolve distance, rate, time conflicts in air traffic control.

Standard 2: Algebra

Algebra – The student uses algebraic concepts and procedures in a variety of situations.

Benchmark 2: Variables, Equations, and Inequalities – The student uses variables, symbols, real numbers, and algebraic expressions to solve linear equations and inequalities in a variety of situations.	
Eighth Grade Knowledge Base Indicators The student… 5. represents and solves algebraically: c. percent of increase or decrease	***LineUp With Math™* Activities** --Use percent relationships to resolve distance, rate, time conflicts in air traffic control.

Benchmark 4: Models – The student generates and uses mathematical models to represent and justify mathematical relationships in a variety of situations.	
Eighth Grade Application Indicators The student… 1. recognizes that various mathematical models can be used to represent the same problem situation. Mathematical models include: a. process models (concrete objects, pictures, diagrams, number lines, hundred charts, measurement tools, multiplication arrays, division sets, or coordinate grids) to model computational procedures, algebraic relationships, mathematical relationships and problem situations and to solve equations; e. function tables to model numerical and algebraic relationships;	***LineUp With Math™* Activities** --Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts. --Identify and resolve distance, rate, time conflicts in air traffic control problems by varying plane speeds or changing plane routes.

f. coordinate planes to model relationships between ordered pairs and linear equations and inequalities; j. frequency tables, bar graphs, line graphs, circle graphs, Venn diagrams, charts, tables, single and double stem-and-leaf plots, scatter plots, box-and-whisker plots, and histograms to describe, interpret, and analyze data	
3. uses the mathematical modeling process to analyze and make inferences about real-world situations	--Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts.

Standard 3: Geometry

Geometry – The student uses geometric concepts and procedures in a variety of situations.

Benchmark 2: Measurement and Estimation – The student estimates, measures, and uses measurement formulas in a variety of situations.

Eighth Grade Knowledge Base Indicators The student…	***LineUp With Math™* Activities**
1. determines and uses rational number approximations (estimations) for length, width, weight, volume, temperature, time, perimeter, area and surface area using standard and nonstandard units of measure (2.4.K1a)	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
2. selects and uses measurement tools, units of measure, and level of precision appropriate for a given situation to find accurate rational number representations for length, weight, volume, temperature, time, perimeter, area, surface area and angle measurements. (2.4.K1a)	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
6. recognizes how ratios and proportions can be used to measure inaccessible objects (2.4.K1c)	--Use an interactive simulator plus calculation worksheets to apply proportional reasoning to identify and resolve distance, rate, time conflicts in air traffic control.
7. calculate rates of change	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. --Identify and resolve distance, rate, time conflicts in air traffic control problems by varying plane speeds or changing plane routes.

Eighth Grade Application Indicators The student… 2. estimates to check whether or not measurements or calculations for length, weight, volume, temperature, time, perimeter, area, and surface area in real-world problems are reasonable and adjusts original measurement or estimation based on additional information (a frame of reference) (2.4.A1a)	***LineUp With Math™* Activities** --Predict and resolve aircraft conflicts and explain results of mathematical calculations and simulations.
3. uses ratio and proportion to measure inaccessible objects (2.4.A1c)	--Use an interactive simulator plus calculation worksheets to apply proportional reasoning to identify and resolve distance, rate, time conflicts in air traffic control.
Benchmark 4: Geometry From An Algebraic Perspective – The student relates geometric concepts to a number line a coordinate plane in a variety of situations.	
Eighth Grade Application Indicators The student… 1. represents, generates, and/or solves distance problems (including the use of the Pythagorean theorem, but not necessarily the distance formula)(2.4.A1a)	***LineUp With MathTM Activities*** --Predict and plot the relative motion of two or more airplanes on given paths.
2. translates between the written, numeric, algebraic, and geometric representations of a real-world problem (2.4.A1a, d-g).	--Use an interactive simulator plus calculation worksheets to model and resolve air traffic control conflicts.